We claim:

1. A flow-through electrochemical reactor comprising:

a body having an internal chamber, and an inlet port and an outlet port in communication with said internal chamber to permit flow of wastewater therethrough;

at least one porous anode arranged in said internal chamber such that the wastewater flowing between said inlet port and said outlet port flows through the pores of said at least one porous anode, said at least one porous anode having activity for the destruction of a target substance; and

at least one cathode disposed in the internal chamber to permit an electric current to be established between said at least one cathode and said at least one anode, said electric current reducing the concentration of said target substance in the wastewater flowing through the chamber.

2. A flow-through electrochemical reactor according to claim 1, wherein the porous anode comprises a foam.

3. A flow-through electrochemical reactor according to claim 1, wherein the porous anode comprises a substrate having an anodic coating.

4. A flow-through electrochemical reactor according to claim 3, wherein the substrate is tantalum or titanium.

5. A flow-through electrochemical reactor according to claim 3, wherein the anodic coating is selected from the group consisting of platinum, tantalum-doped iridium dioxide and antimony-doped tin dioxide.

6. A flow-through electrochemical reactor according to claim 1, wherein the at least one cathode is a porous cathode, and wherein the at least one porous cathode is sized in the internal chamber so that the wastewater passes through the pores of the porous cathode.

7. A flow-through electrochemical reactor according to claim 6, wherein the porous cathode comprises a foam.

8. A flow-through electrochemical reactor according to claim 1, wherein the cathode comprises nickel.

9. A flow-through electrochemical reactor according to claim 1, wherein the body is tubular and the internal chamber is generally cylindrical, and wherein each anode and cathode is supported by an insulating holder sized to be slidably inserted into the internal chamber.

10. A flow-through electrochemical reactor according to claim 1, wherein the reactor comprises from two to ten anodes and from three to eleven cathodes, respectively, in alternating arrangement.

11. A flow-through electrochemical reactor according to claim 10, wherein the reactor comprises seven cathodes and six anodes.

12. A flow-through electrochemical reactor according to claim 1, wherein the target substance comprises an aryl compound, and, in use, the reactor produces an electrical

current having a current density capable of oxidizing the aryl compound.

13. A flow-through electrochemical reactor according to claim 12, wherein the aryl compound is selected from the group consisting of phenol, o-cresol, m-cresol and p-cresol.

14. A flow-through electrochemical reactor according to claim 13, wherein the aryl compound is phenol.